AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes changes to Fig. 5. This sheet is submitted to replace the sheet of Drawings containing Fig. 5 submitted with the June 22, 2007 response. Fig. 5 has been further modified relative to the version of Fig. 5 submitted with the June 22, 2007 response to remove the first 27 nucleotides from the 5' end and the last 18 nucleotides from the 3' end. This amendment is submitted responsive to the Examiner's objection to the specification and to make the figure more consistent with Fig. 5 as submitted with the original application.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS

Priority

Applicants note the Examiner's acknowledgment of applicants' claim for foreign priority under 35 USC 119 to foreign patent application DE 198 46 838.5. Furthermore, the Examiner has commented that SEQ ID NO: 1 as disclosed in Figure 5 of the certified English translation of the priority document differs from that of the original German application. Applicants respectfully submit that there is no difference between the sequences provided in those two documents. However, applicants note that the original Figure 5 submitted with the US application as filed differs from both Figure 5 of the certified English translation of the priority document and that of the original German application. In particular the US application as filed includes only the coding sequence of the native *Drosophila melanogaster* kinase gene, whereas the sequence disclosed in original foreign patent application DE 198 46 838.5 includes both 5 and 3' untranslated regions of the native *Drosophila melanogaster* kinase gene. Accordingly, applicants submit herewith a revised Figure 5 wherein the first 27 nucleotides and the last 18 nucleotides, representing the 5' and 3' untranslated regions, respectively, have been removed, consistent with the original Figure 5 submit in the captioned US application.

As noted on page 12 of the certified translation of DE 198 46 838.5, Figure 5 of that document represents the "DNA sequence of the clone". Original claim 9 of the DE 198 46 838.5 application discloses "isolating the coding sequence of DM-dNK" (emphasis added). DM-dNK is the abbreviation for the *Drosophila melanogaster* kinase. Those skilled in the art would readily recognize that the sequence provided in Figure 5 of DE 198 46 838.5 (note that original Figure 5 designates the individual codons of the gene) contains nucleotide sequences in addition to the coding sequence (i.e., the presence of 5' and 3' untranslated regions) due to the location of the start and termination codon. Therefore, one of ordinary skill in the art would be able to identity, within the sequence of Figure 5 as presented in DE 198 46 838.5, the approximately 750 bp coding region of the gene that encodes a 250 amino acid polypeptide. In this regard applicants note that the DE 198 46 838.5 application specifies on page 5 second to last paragraph the approximate size of the coding sequence and peptide, thus providing further assistance in identifying the coding sequence. Accordingly, applicants respectfully submit the disclosed sequence as provided on amended Figure 5 as submitted herewith, and as designated as SEQ ID NO: 1 in the original US specification, is fully supported by the specification of DE 198 46 838.5.

Objections to the Specification

The Examiner has raised an objection to the specification, contending that the amended drawing submitted for Figure 5 contains new matter. As noted by the Examiner the amended drawing submitted on June 22, 2007 contains additional nucleotides (i.e., the first 27 nucleotides and the last 18 nucleotides, representing the 3' and 5' untranslated regions, respectively) relative to the sequence disclosed in Figure 5 of the originally submitted drawings. Applicants have submitted herewith a revised Figure 5 removing those additional sequences.

Revised Figure 5 as submitted herewith is substantively identical to the original drawing filed in the captioned US application with the exception that the "R" at position 308 has been substituted with a "T". Applicants respectfully submit that the amendment substituting "T" for "R" merely corrects a drafting error and that this correction is consistent with the present specification (which indicates that SEQ ID NO: 1 represents the native *Drosophila melanogaster* kinase gene isolated in accordance with the method disclosed on page 5 lines 10-20). Applicants' amendment of the drawing to substitute "R" at position 308 with "T" merely captures the subject matter applicants possessed at the time the application was filed, and which applicants intended to be the subject of the claimed invention. Accordingly, applicants respectfully submit the correction of the typographical error in the sequence of SEQ ID NO: 1 of Figure 5 does not introduce any new matter into the specification. See the attached Declaration under 37 CFR 1.132 submitted herewith.

Claims 15-20 and 22-27 stand rejected under 37 CFR 112, first paragraph for failing to comply with the written description requirement. Applicants respectfully traverse this rejection.

As noted in the Declaration under 37 CFR 1.132 submitted on August 9, 2007, SEQ ID NO: 1 and Figure 5 of the original specification contained a typographical error that occurred during the drafting of the application. Applicants amendment of position 308 of SEQ ID NO: 1 and Figure 5 merely corrects the sequence to designate the actual sequence that was obtained using the procedures disclosed on page 5 lines 10-20. To further clarify that the original sequence contained an error as the result of a drafting error, applicants submit herewith a second Declaration under 37 CFR 1.132. This Declaration, by one of the named inventors (Dr. Hans-Georg Ihlenfeldt), establishes that the corrected sequence (substituting a "T" for and "R" at position 308) was the sequence obtained using the procedure disclosed on page 5 lines 10-20 of the present specification.

Applicants respectfully submit that the specification repeatedly notes that the desired gene was isolated from *Drosophila melanogaster* nucleic acids sequences. There is no mention in the specification regarding a modification of the kinase gene or protein sequence. Accordingly, applicants respectfully submit that one of ordinary skill in the art would readily appreciate that the designation of an "R" at position 308 was an obvious error.

The Examiner correctly notes that the recitation of "R" in a nucleotide sequence can be used in accordance with 37 CFR 1.822(b) to designate either an A or a G. However, in the present application the designation of an A or G at position 308 would represent an alteration in the amino acid sequence of the encoded gene product. The codon represented by nucleotide positions 307-309 in the native sequence (as independently reported by Johansson et al., Journal of Biological Chemistry, Vol. 274, p. 23814-23819 (August, 1999)) is ATG, which encodes for methionine. Substituting the T with an A or G would insert a lysine or an arginine in its place. Applicants intended to claim the native kinase sequence and those skilled in the art would readily recognize that the designation of "R" at position 308 would not be identifying a single protein, and thus must represent an obvious error.

As noted in Munch-Petersen et al., Journal of Biological Chemistry, Vol. 273, p. 3926-3931 (February, 1999), the genome of *D. melanogaster* contains only **one** major deoxyribonuclease kinase gene. The method disclosed on page 5 lines 10-20 of the present specification discloses the method that was used to isolate and sequence the native *D. melanogaster* deoxyribonuclease kinase gene. Furthermore, in a later publication, Johansson et al., Journal of Biological Chemistry, Vol. 274, p. 23814-23819 (August, 1999) provides the sequence of that gene and indicates that the nucleotide sequence of **the** *D. melanogaster* kinase gene comprises a "T" at position 308. The sequence disclosed by Johansson et al is consistent with the sequence that applicants obtained using the method disclosed on page 5, lines 10-20. This is the sequence applicants had in their possession, and intended to disclose in the present specification, but through a typographical error an "R" was entered at position 308.

Applicants respectfully submit the evidence of record, including the Declaration submitted herewith fully supports the conclusion that the designation of an "R" at position 308 of SEQ ID NO: 1 is an obvious error. Therefore, applicants respectfully submit the correction of that error introduces no new matter.

Claims 16, 22 and 27 stand rejected for failing to comply with the written description requirement for use of the phrase "retains over 90% of its initial activity" and the designation of the time length of "30 minutes". Applicants respectfully traverse this rejection.

Applicants respectfully submit that the language of claims 16, 22 and 27 is fully supported by the data presented in Figure 7A and the text provided in Example 7 of the original specification. In particular, applicants note that Figure 7A shows that recombinantly expressed *Drosophila melanogaster* kinase remains stable without the addition of BSA, retaining near 100% of its activity during incubation in a Tris buffered solution for at least 50 minutes. The data presented in Fig. 7A clearly shows that after 30 minutes incubation in the Tris buffered solution described in the claims (as well as subsequent measured time points) near 100% of the kinase activity is retained. Thus, applicants submit that the data presented in Figure 7A fully supports claims 16, 22 and 27 since the data shows that more than 90% of the kinase activity is retained after 30 minutes of incubation in the absence of BSA.

The Examiner has also objected to claims 16 and 24 for their failure to recite the specificity constant is k_c/K_m. First of all applicants believe the Examiner intended to make reference to claims 18 and 24, since claim 16 does not make reference to a specificity constant. Applicants have amended claims 18 and 24 to recite "the specificity constant k_c/K_m", thus rendering the rejection moot. Support for the claim amendment is found in original claim 4.

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The foregoing claim amendments and remarks are believed to fully respond to the Examiner's rejections and the claims are believed to be in condition for allowance. Applicants respectfully request allowance of the claims, and passage of the application to issuance. If any further discussion of this matter would speed prosecution of this application, the Examiner is invited to call the undersigned at (434) 220-2866.

Respectfully submitted,

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Application No. 10/680,635
Reply to Office Action of December 10, 2008
Annotated Sheet Showing Changes

5' nucleotides deleted

Figure 5

Seq. ID No.: 1

~~GAT CTG GTT CCG CGT~~
~~CGA TCG~~ ATG GCG GAG GCA GCA TCC TGT GCC CGA AAG GGG ACC AAG TAC GCC
GAG GGC ACC CAG CCC TTC ACC GTC CTC ATC GAG GGC AAC ATC GGC AGC GGG
AAG ACC ACG TAT TTG AAC CAC TTC GAG AAG TAC AAG AAC GAC ATT TGC CTG
CTG ACC GAG CCC GTC GAG AAG TGG CGC AAC GTC AAC GGG GTA AAT CTG CTG
GAG CTG ATG TAC AAA GAT CCC AAG AAG TGG GCC ATG CCC TTT CAG AGT TAT
GTC ACG CTG ACC ATG CTG CAG TCG CAC ACC GCC CCA ACC AAC AAG AAG CTA
AAA ATA ATG GAG CGC TCC ATT TTT AGC GCT CGC TAT TGC TTC GTG GAG AAC
ATG CGA CGA AAC GGC TCG CTG GAG CAG GGC ATG TAC AAT ACG CTG GAG GAG
TGG TAC AAG TTC ATC GAA GAG TCC ATT CAC CTG CAG GCG GAC CTC ATC ATA
TAT CTG CGC ACC TCG CCG GAG GTG GCG TAC GAA CGC ATC CGG CAG CGG GCT
CGT TCT GAG GAG AGC TGC GTG CCG CTT AAG TAC CTT CAG GAG CTG CAT GAG
TTG CAC CAG GAC TGG TTG ATA CAC CAG AGA CGA CCG CAG TCG TGC AAG GTC
CTA GTC CTC GAT GCC GAT CTG AAC CTG GAA AAC ATT GGC ACC GAG TAC CAG
CGC TCG GAG AGC AGC ATA TTC GAC GCC ATC TCA AGT AAC CAA CAG CCC TCG
CCG GTT CGT GTG TCG CCC AGC AAG CGC CAG AGG GTC GCC AGA TAA ~~CGA ATT~~
~~GAT CGT CAC TGA~~

3' nucleotides deleted